

What is claimed is:

1. An isolated DNA molecule comprising a DNA sequence set forth in SEQ ID NO. 2.
2. An isolated DNA molecule comprising a DNA sequence set forth in SEQ ID NO. 3.
3. An isolated DNA molecule comprising a DNA sequence set forth in SEQ ID NO. 4.
4. An isolated DNA molecule comprising a DNA sequence set forth in SEQ ID NO. 7.
5. An isolated DNA molecule comprising a DNA sequence selected from the group consisting of
 - a) the sequence set forth in Figure 1 or a fragment thereof;
 - b) the sequence of SEQ ID NO. 2,
 - c) the sequence of SEQ ID NO. 3
 - d) the sequence of SEQ ID NO. 7
 - e) the sequence of SEQ ID NO. 3 from nucleotide #1 to #1045 and the sequence set forth in SEQ ID NO. 4 from nucleotide #1 through 2217; and
 - f) naturally occurring human allelic sequences and equivalent degenerative codon sequences of (a) through (e).

6. A vector comprising a DNA molecule of claim 1 in operative association with an expression control sequence therefor.
7. A host cell transformed with the DNA sequence of claim 1.
8. A host cell transformed with a DNA sequence of claim 2.
9. A method for producing a purified human aggrecanase protein, said method comprising the steps of:
- (a) culturing a host cell transformed with a DNA molecule according to claim 1; and
 - (b) recovering and purifying said aggrecanase protein from the culture medium.
10. A method for producing a purified human aggrecanase protein, said method comprising the steps of:
- (a) culturing a host cell transformed with a DNA molecule according to claim 2; and
 - (b) recovering and purifying said aggrecanase protein from the culture medium.

11. A method for producing a purified human aggrecanase protein, said method comprising the steps of:

- (a) culturing a host cell transformed with a DNA molecule according to claim 4; and
- (b) recovering and purifying said aggrecanase protein from the culture medium.

12. The method of claim 9, wherein said host cell is an insect cell.

13. A purified aggrecanase polypeptide comprising the amino acid sequence set forth in SEQ ID NO 1.

14. A purified aggrecanase polypeptide comprising the amino acid sequence set forth in SEQ ID NO 8.

15. A purified aggrecanase polypeptide produced by the steps of

- (a) culturing a cell transformed with a DNA molecule according to claim 3; and
- (b) recovering and purifying from said culture medium a polypeptide comprising the amino acid sequence set forth in SEQ ID NO. 1.

16. A purified aggrecanase polypeptide produced by the steps of
- (a) culturing a cell transformed with a DNA molecule according to claim 4;
 - and
 - (b) recovering and purifying from said culture medium a polypeptide comprising the amino acid sequence set forth in SEQ ID NO. 8.
17. An antibody that binds to a purified aggrecanase protein of claim 13.
18. An antibody that binds to a purified aggrecanase protein of claim 14.
19. A method for developing inhibitors of aggrecanase comprising the use of aggrecanase protein set forth in SEQ ID NO. 1 or a fragment thereof.
20. A method for developing inhibitors of aggrecanase comprising the use of aggrecanase protein set forth in SEQ ID NO. 8 or a fragment thereof.
21. The method of claim 19 wherein said method comprises three dimensional structural analysis.
22. The method of claim 20 wherein said method comprises three dimensional structural analysis.

23. The method of claim 19 wherein said method comprises computer aided drug design.
24. The method of claim 20 wherein said method comprises computer aided drug design.
25. A composition for inhibiting the proteolytic activity of aggrecanase comprising a peptide molecule which binds to the aggrecanase inhibiting the proteolytic degradation of aggrecane.
26. A method for inhibiting the cleavage of aggrecan in a mammal comprising administering to said mammal an effective amount of a compound that inhibits aggrecanase activity.
27. The sequence of Hsa011374 SEQ ID NO. 4 and the protein sequences encoded thereby for use in developing aggrecanase inhibitory compounds.